

REMARKS

Claims 1-8 are all the claims pending in the application. Claims 1, 2, 4 and 6-8 are withdrawn from consideration. Claims 3 and 5 are rejected. Claims 3 and 5 are amended to define the structural background of the claimed method and to recite additional steps used in the method. New claims 9-12 are added. New claims 9 and 11 are clearly supported by the original disclosure throughout the original specification. New claims 10 and 12 are clearly supported by the description of page 4, lines 16-19 in the original specification.

Election/Restriction

At pages 3 and 4 of the Office Action, the Examiner outlines a restriction requirement that was made by telephone and identifies Applicant's election of claims 3 and 5 for examination. Applicants confirm this election.

Claim Rejections – 35 U.S.C. § 102

Claims 3 and 5 are rejected under 35 U.S.C. § 102 as being anticipated by Komivama et al (5,346,522). This rejection is traversed for at least the following reasons.

Claims 3 and 5

According to the present invention as now defined in independent claim 3, the displacement of the part of the structure member is detected by the detecting means, the correction value for the moving distance of the second die is calculated based on the detected displacement by the controller, and the driving means is controlled so that the second die moves the distance in accordance with the correction value by the controller.

According to the present invention as now defined in independent claim 5, the temperature of the part of the structure member is detected by the temperature detecting means, the correction value for the moving distance of the second die is obtained based on information including the detected temperature and the value of the displacement corresponding to the detected temperature as stored in the memory by the controller, and the driving means is

controlled so that the second die moves the distance in accordance with the correction value by the controller. This is the feature of the present invention recited the amended claim 5.

According to the present invention recited amended claims 3 and 5, the change in position of the portion exhibiting thermal displacement resulting from the thermal deformation of the structure member is fed back to the controller upon press-molding. As a result, even if the thermal deformation of the structure member occurs, it is possible to accurately control the glass optical element in dimension and to produce the product high in accuracy. Komiyama fails to disclose or suggest these features of the present invention.

Komiyama

Komiyama relates an apparatus for press-molding the optical element in which the heating means is adjusted in position in accordance with the upper and lower molds and the molds are heated, even if the relative position between the mold and heating means is changed.

The Examiner asserts Komiyama discloses the following:

- (a) a mold comprising first and second dies (col. 2, line 48);
- (b) driving/moving means for said dies (col. 2, line 51);
- (c) heating means for heating dies (col. 2, line 48);
- (d) detection means for control (col. 8, line 47); and
- (e) a controller of moving distance of dies (col. 8, line 54).

However, the present invention is clearly different from Komiyama with regard to the claimed “detection means for control” and “controller of moving distance of dies”.

Different Detecting Means in Claim 3

In Komiyama, the “detection means for control” corresponds to the temperature sensors 340 and 350 mounted on the upper and lower molds 170 and 180. As described at col. 8, lines 47-59, the detecting signal detected by the temperature sensor 340 and 350 is inputted to the temperature/voltage conversion circuits 360 and 370. The output signal of the temperature/voltage conversion circuits 360 and 370 is inputted to the temperature difference computing circuit 380.

Further, the output signal of the temperature difference computing circuit 380 is inputted to the matching circuit 390 and the output signal of the matching circuit 390 is inputted to the PID controller 400 (a kind of feed-back control portion). The output signal of the PID controller 400 is inputted to the positioning device 410 and the output signal of the positioning device 410 is inputted to the motor driver 420.

In short, the “detection means” in Komiyama detects the temperature of the upper and lower molds while the “controller (PID controller)” controls the motor for positioning the heating means based on the detected result of the “detecting means”. Accordingly, the “controller” of Komiyama does not control the moving distance of the mold.

By contrast, in the present invention recited in the amended claim 3, “detecting means” detects the displacement of the part of the structure member to which the first die is fixed but does not detect the temperature of the mold. Thus, “detecting means” of Komiyama is clearly different from “detecting means” of the present invention.

Different Controller in Claim 3

Furthermore, according to the present invention as defined in the amended claim 3, the “controller” calculates the correction value for the moving distance of the second die based on the detected displacement and controls the driving means so that the second die moves the distance in accordance with the correction value. The “controller” of Komiyama does not perform such calculation, as noted above and is clearly different from “controller” of the present invention.

Different Detecting Means in Claim 5

According to the definition of the present invention in amended claim 5, the “detecting means” detects the temperature of the part of the structure member to which the first die is fixed but does not detect the temperature of the mold. On the basis of the foregoing explanation, the “detecting means” of Komiyama is clearly different from “detecting means” of the present invention.

Different Controller in Claim 5

Finally, according to the definition of the present invention in amended claim 5, the “controller” obtains the correction value for the moving distance of the second die based on information including the detected temperature and the value of the displacement corresponding to the detected temperature as stored in the memory and controls the driving means so that the second die moves the distance in accordance with the correction value. On the basis of the foregoing description, the “controller” of Komiyama is clearly different from “controller” of the present invention.

In sum, Komiyama fails to disclose or teach the basic technical concept of the present invention, i.e., “the displacement (or temperature) of the structure member, which constitutes the molding apparatus and is thermally displaced, is detected and the moving distance of the die is corrected in accordance with the displacement (or temperature)”. Thus, as discussed above, Komiyama fails to disclose or teach both “detecting means” and “controller” of the present invention and therefore, the present invention is clearly patentable over Komiyama.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Amendment Under 37 C.F.R. § 1.111
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The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,
/Alan J. Kasper/

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

23373

CUSTOMER NUMBER

Alan J. Kasper
Registration No. 25,426

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